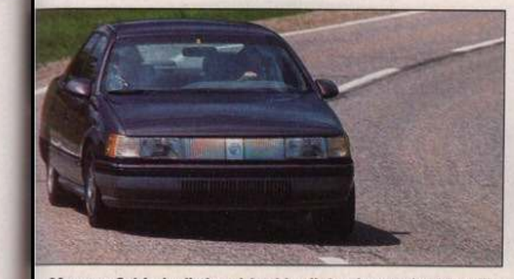
WORLD-CLASS SUPER SEDANS

Wind-wise and space-efficient, Detroit's new family 4-doors rival the best that Europe and Japan have to offer.

Egg-carton dividers dress up the taillights of the high-line Taurus.

Aerodynamic touches on upscale Taurus nose include flush-fitting headlights, blocked-off grille with floating Ford logo.

Ford's distinctive new Taurus, with a C_d of .32, is the result of a five-year, $3-billion-dollar development project.



Mercury Sable is distinguished by lights integral with grille.

GM N-cars take on the Euro look in '86, as shown by Pontiac Grand Am.

BY WADE HOYT, Auto Editor, AND NORMAN MAYERSOHN, Assistant Auto Editor

The catch-up game is over in Detroit. After years of diligent work to recover from the marketing and technology lead held by foreign car builders, Motown once again has a generous offering of high-performance models back in the lineup, and the econocar sector is well covered by domestic minis and captive imports. With those two categories out of the way, American companies are turning their attention to a market segment that until 1986 has been dominated by European manufacturers—the super family sedans.

More than just another way to part Yuppies from their paychecks, the new-generation family sedans are aimed at providing high levels of comfort and convenience features in a stylish 4-door body shell. Chrysler's H-cars were early entrants in this market segment, and are now followed by GM's 4-door version of the N-car (Pontiac Grand Am, Olds Calais

FORD PHOTOS BY BARRY PENFOUND

detroit '87

and Buick Somerset Regal). Most stunning of the group, and clearly the models with the greatest continental influence, are the Taurus and Sable stablemates from Ford. They'll be built in Atlanta, Georgia, but the styling clues and engineering fine points are unmistakably European.

Cherokee pickup is derived from Wagoneer series, offers Jeep's first 2wd truck since 1947.

The aero Fords

The Ford Taurus, Mercury Sable and the Aerostar van are all excellent examples of Ford's total commitment to European styling and leading-edge aerodynamics. The Taurus/Sable is one of the auto industry's worst-kept secrets, and intentionally so. Ford wanted to give the public a lot of time to get used to these radical new shapes before they hit the showrooms. The sedans and wagons have been pushed hard in consumer clinics, and early prototypes were released to the press months ago (see *1986 Ford Taurus And Mercury Sable*, page 71, July '85).

Lou Veraldi, Ford's chief engineer of large production cars, says that the T/S cars represent a new philosophy at Ford: "Let's do a car that adapts to the customer, instead of the other way around." Just one example is the seat construction, which cost Ford $40 more than the competition's seats. And they feel like it, too. This is yet another European design trend, picked up early by the Japanese but only now filtering into Detroit—foreign companies usually put a larger percentage of the car's cost than U.S. firms do into making the driver/buyer comfortable. That's a pretty smart way to sell cars—your first test drive in the vehicle is a revelation.

Ford put five years and $3 billion into the Taurus/Sable project, including all-new engines and suspension setups. Standard powertrain when the cars go on sale in November will be a 3-liter 60° V6 with multiport fuel injection. Mounted sideways, it drives the front wheels through a 4-speed automatic with an overdrive/lockup high gear. EPA city/highway gas mileage figures are expected to be in the 20/30-mpg range for the sedans and 18/28 for the wagons.

Mercury Lynx XR3 is a red-hot pocket rocket with the 115 hp, fuel-injected, 1.9-liter Four and 5-speed transmission.

Astro Sport styling exercise could reach production in '86.

Ford Aerostar is finally on line after numerous delays.

New Ford philosophy: A car that adapts to the customer, instead of the other way around.

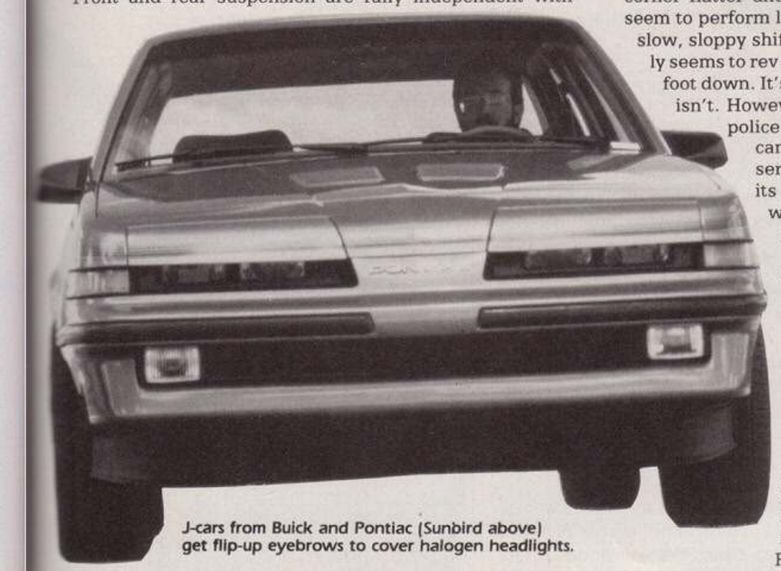
By February, a 2.5-liter version of Ford's pushrod HSC Four (now in the Tempo/Topaz) will be offered with a 5-speed manual or 3-speed automatic. Expect 35 highway mpg from this version, but not a whole lot of fun. The stick shift prototype we drove was sluggish and notchy, and had the definite feel of a fleet car.

The V6 is no scorcher either, doing 0 to 60 in 12 seconds if you use dragstrip techniques, but more like 14½ seconds with a couple of people on board and plain old foot-to-the-floor driving. The fact that the T/S twins are intended as family cars is underlined by the fact that neither performance tires nor a 5-speed transaxle (to come from Mazda) will be offered until 1987. Power ratings are 140 hp @ 4800 rpm and 160 lb.-ft. of torque @ 3000 rpm for the V6 and approximately 100 hp and 138 lb-ft. for the Four.

For family cars, their ride and handling is uncanny. Front and rear suspension are fully independent with MacPherson gas struts at each end. Ten inches of wheel travel allows for a smooth ride in cars that otherwise handle like European imports. The power steering is precise, not overboosted, and 4° of positive caster makes the cars track straight and true on the highway.

Of course, there were still some rough edges on the handbuilt prototypes we drove at the proving grounds and on the road. Perhaps because there was so little wind noise (Cd is an outstanding 0.32 for the sedans, 0.34 for the wagons), you can hear a lot of road rumble in the back seats. The plastic molding around the rear windows doesn't fit well and needs a quick redesign. The map/dome light looks like a $3 mail-order item. Rear windows open, but only halfway due to the wheel arch intrusion. Most disconcerting is the impressive instrument panel/pod, which is canted toward the driver and gives the illusion that its right side is drooping. All the labelled buttons are angled downward toward your knees, rather than upward toward the eyes. You can still read them, but it seems funny not to point them the right way.

Nit-picking aside, the Taurus/Sable cars have lots of thoughtful features, including bi-fold sun visors, and picnic trays in the wagons. The cars look a lot like Audis, corner flatter and ride smoother than Audis, but don't seem to perform like Audis. The weak V6 isn't helped by slow, sloppy shifts in the automatic—the engine actually seems to rev up between shifts when you've got your foot down. It's a shame that a car that looks so sporty, isn't. However, Ford has performance options and police packages up its sleeve for '87, with a 4-cam, 24-valve V6 in the works, too. Ford is serious about working all the bugs out of its cars before they go on sale, which is why the intro has been pushed back a couple of times already.



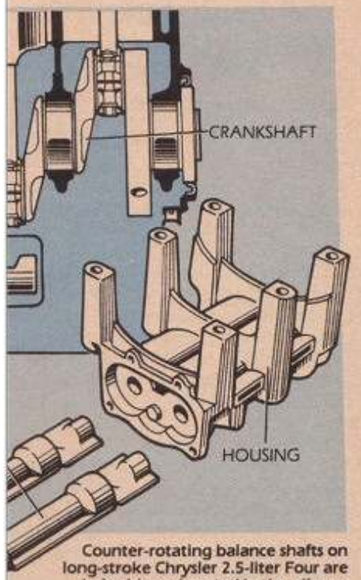
J-cars from Buick and Pontiac (Sunbird above) get flip-up eyebrows to cover halogen headlights.

Ford Tempo gets a new aero nose, with flush headlamps.

Space van

The Aerostar van (much-delayed for the same reason) is expected in stores by the time you read this. Falling midway in size between Chrysler's front-drive T-vans and Chevy's rear-drive midivan, the rear-drive Aerostar is smooth-riding and carlike, closer to the Chrysler in feel than the truck-like Chevy Astro. Built on a Ranger/Bronco platform, it has the 2.3-liter pushrod Four as its base engine and the German-built 2.8-liter V6 optional.

Front seats are buckets, and so are the middle ones with the 7-seat option, giving a central walk-through aisle to the 3-place bench in the rear. A 5-speed is available with both engines, but even the automatic has a floor shift with a 3-ft. lever! The setup works well and it's kind of fun. Again, we had only a prototype to play with, and the seat latches did not work as smoothly as the ones in the Chrysler or Chevy vans when we wanted to swap seats around. Tons of neat options here, including a separate sound system with headphones for the punk-rockers in the back seats.

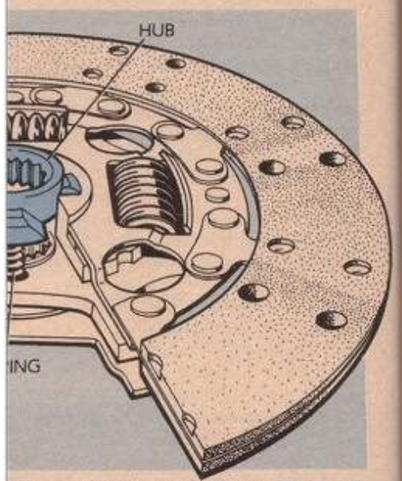


Counter-rotating balance shafts on long-stroke Chrysler 2.5-liter Four are chain driven. Located in the oil pan, rather than the engine block, the shafts help control vibration of Four.

ler vans with the 2.2-liter engine, 2.2 turbos and all 2.5-liter engines.

Ford

Ford's '86 Taurus and Sable are the intermediate latecomers, so to make inroads they need more than aero styling. Horsepower is selling, and so a high-compression 3-liter V6 with fuel injection is the standard powerplant for Job 1, with a 2.5-liter Four not available



Chrysler clutches use a 2-piece, spring-loaded dampens the engine's rotational impulses.

in these '86 Fords until mid-year.

The 3-liter has a 60° angle between the cylinder banks, good for balance and engine compartment fit. It's slightly larger and rated as more powerful than the '85 Chevy 2.8 V6 (140 horsepower vs. 107 for the standard Chevy and 135 for the high-performance model). Injection is the port type with a separate fuel injector at each intake port. The 9.25:1 compression ratio seems high for regular unleaded, but the V6 has the latest Ford fast-burn combustion chamber, which cuts octane needs. It features a mask around the intake valve to promote fuel mixture swirl and a more centralized sparkplug that projects deep into the chamber.

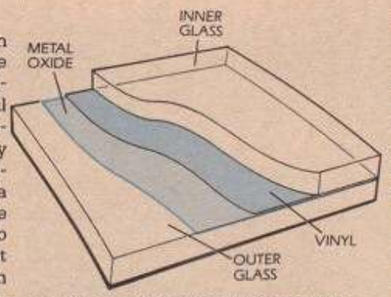
Both engines have low-friction technology, which includes low-tension piston rings, plus premium rubber gaskets and oil seals so they can use 5W-30 oil without leaking. The V8, which has to pass a 22.5 mpg standard for 1986 to avoid the gas guzzler tax, also gets sequential fuel injection (the injectors trigger one at a time following the firing order, instead of the simpler but less effective four at a time). Roller tappets, installed on some V8s last year, go on all of them in '86.

Taurus and Sable have a couple of better ideas that will undoubtedly see wide use: an electrically-heated windshield that can remove frost in a couple of minutes at 0° F, and structural plastic bumper that can really take a whack.

The windshield system is very different from the grid-heated rear window (which would interfere with the driver's view). It's an expensive design Ford used in the mid-1970s which required a second alternator, wired to produce 110 volts, and a windshield with an ultra-thin gold film coating.

The new one begins with a standard three-piece windshield construction: outer and inner layers of glass and vinyl sheet safety divider. An ultra-thin coat of silver and zinc oxide is applied to the inner surface of the outer piece of glass. The coating does not noticeably affect visibility. A slightly thicker coat is applied around the perimeter of the windshield, and wiring terminals are attached to it.

Push a dashboard switch and the alternator runs without voltage regulation to quickly produce 70 volts or more. The high-voltage current runs to the windshield for four minutes. Then, the module breaks the circuit to the windshield and the alternator is again controlled by the voltage regulator. The windshield system is locked out if the battery is weak.

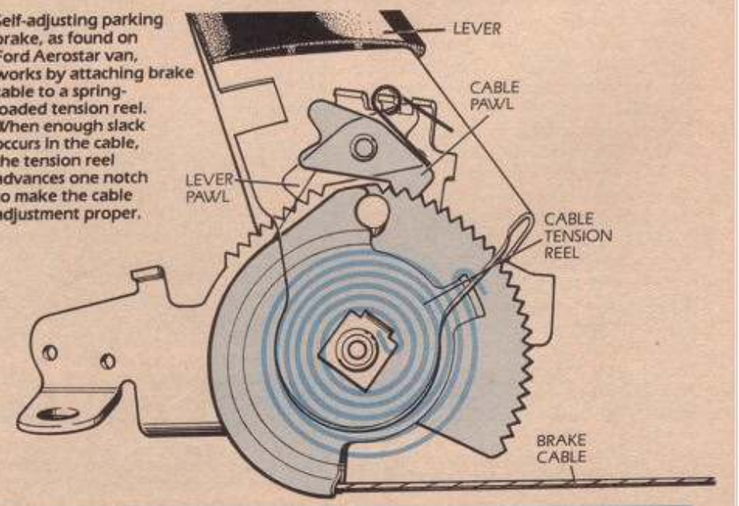


Ford's heated windshield uses a transparent layer of metal oxide as a heating element to melt ice in just two minutes at 0° F.

The structural plastic bumpers, also on Ford's Aerostar van, are a first U.S. application. They're a 2-piece design, an outer "face" section bonded to an inner reinforcement, and attached to conventional shock-absorbing members. The bumpers are rated for 5 mph, but take higher-speed impacts if the load is distributed evenly, such as bumper-to-bumper. At higher speeds, the bumper may get nothing more than a gouge. It takes a major whack to cause the bumper to crack.

The Aerostar van also gets a better Ford idea all its own: a self-adjusting parking brake. It has the standard brake handle with a spring-loaded pawl that locks against a ratchet–toothed section on the bracket. However, the brake cable is attached to a spring-loaded circular reel pinned to the bracket. This reel, which also has a toothed section, meshes with a second spring-loaded pawl in the handle. When the handle is pulled up, the reel rotates with its toothed section locked to the second pawl to operate the cable. Push the release button on the handle and a rod disengages the first pawl. When the handle is moved down, a tab on the bracket disengages the second pawl from the cable reel teeth. If there's any cable slack, the spring-loaded reel turns to compensate, moving its toothed section around a notch, so that the next tooth is opposite the second pawl. Lift the handle and the second pawl reengages the toothed section at the new point, taking up any slack.

Self-adjusting parking brake, as found on Ford Aerostar van, works by attaching brake cable to a spring-loaded tension reel. When enough slack occurs in the cable, the tension reel advances one notch to make the cable adjustment proper.



General Motors

The '86 Corvette looks like a carryover, but it's GM's leader in under-the-skin changes. The most customer-pleasing achievement is passing '86 gas guzzler specs (22.5 mpg) on the 350-cube V8. New parts include aluminum cylinder heads with reworked ports and combustion chambers, an exotic exhaust system with three catalytic converters, plus revised gear ratios in the manual overdrive transmission (down from 0.67 to 0.60:1) and a 2.59 rear axle ratio (with last year's 3.07 available as an option).

The three cats are free-breathers, and the first two, one behind each exhaust manifold, heat up quickly to cut hydrocarbons. With HC lowered, Chevy can add up to 8° of spark advance at part throttle, improving fuel economy.

The aluminum heads save over 40 pounds, but their most significant achievement results from port and chamber changes that increase fuel mixture burn rate. With a faster burn, the compression ratio can be raised from 9.0 to 9.5:1 for fuel better economy without raising octane needs.